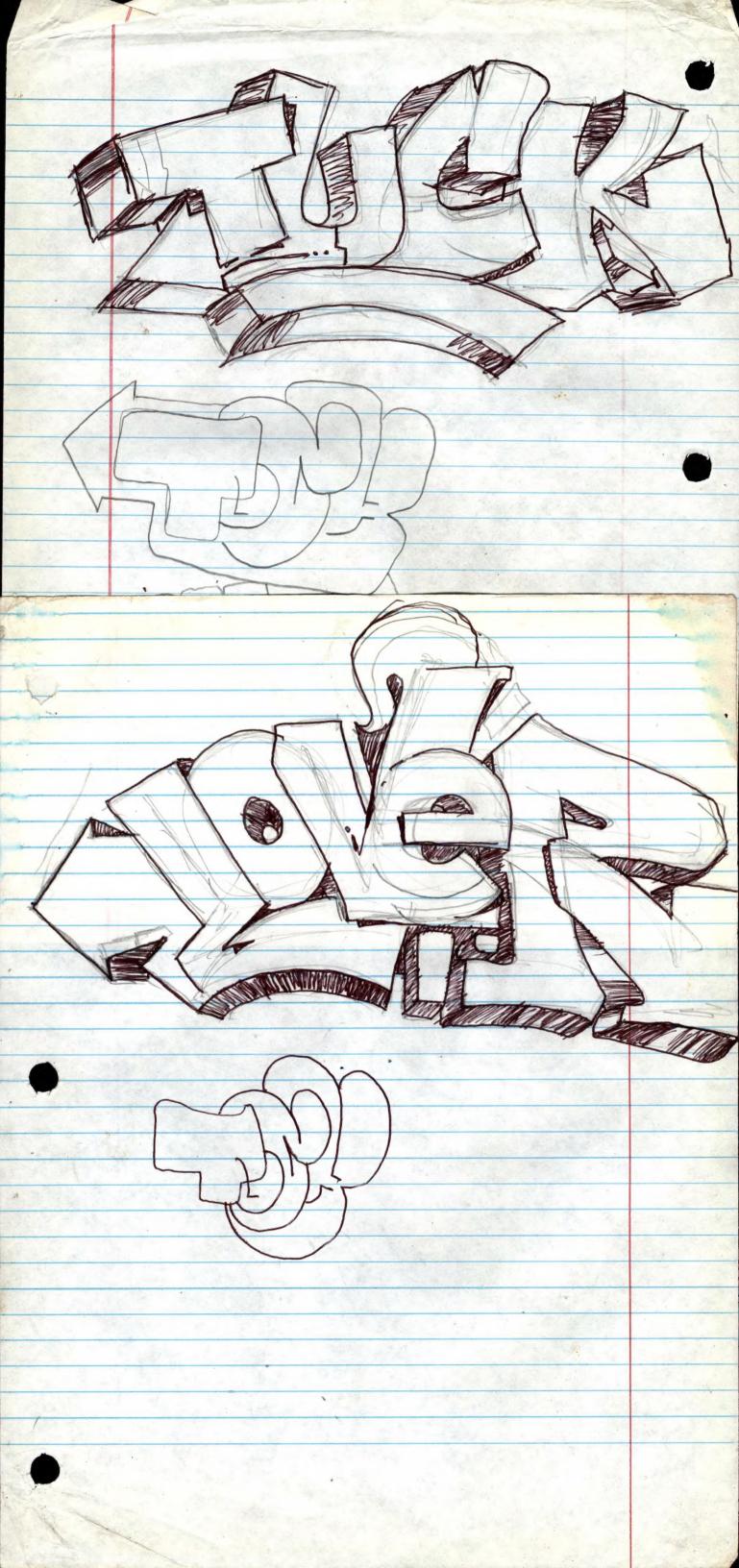
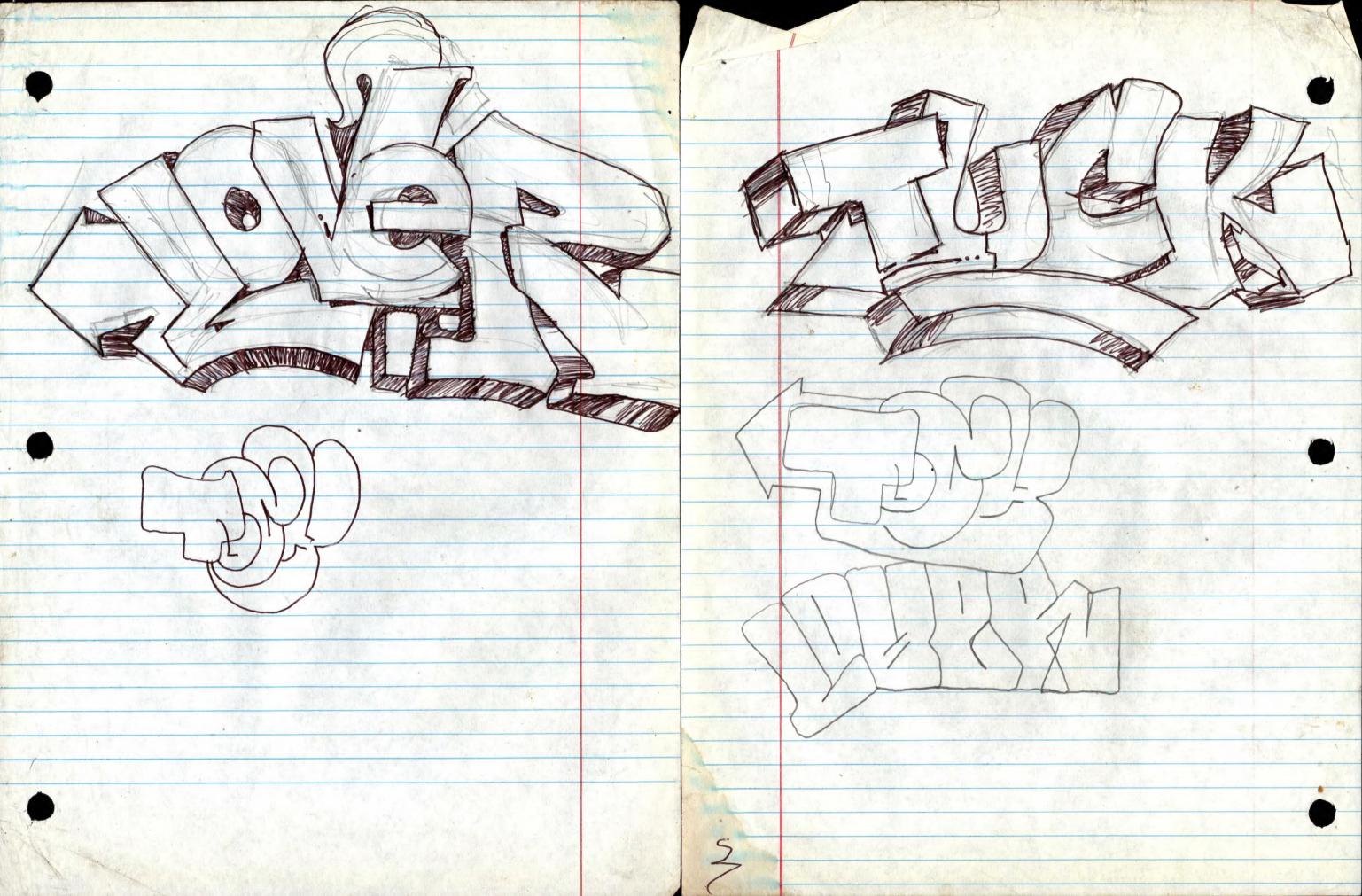
```
11/27/24, 5:06 PM HTML Standard
```

#### Example

In the following example, the page has several places where links are present, but only one of those places is considered a navigation section.

```
<body itemscope itemtype="http://schema.org/Blog">
 <header>
 <h1>Wake up sheeple!</h1>
  <a href="news.html">News</a> -
    <a href="blog.html">Blog</a> -
    <a href="forums.html">Forums</a>
  Last Modified: <span itemprop="dateModified">2009-04-01</span>
  <nav>
  <h2>Navigation</h2>
  <a href="articles.html">Index of all articles</a>
   <a href="today.html">Things sheeple need to wake up for today</a>
   <a href="successes.html">Sheeple we have managed to wake</a>
  </nav>
 </header
 <main>
 <article itemprop="blogPosts" itemscope itemtype="http://schema.org/BlogPosting">
  <header>
   <h2 itemprop="headline">My Day at the Beach</h2>
  </header>
  <div itemprop="articleBody">
   Today I went to the beach and had a lot of fun.
    ... more content...
  </div>
  <footer>
   Posted <time itemprop="datePublished" datetime="2009-10-10">Thursday</time>.
  </footer>
 </article>
  ...more blog posts.
 </main>
 <footer>
  Copyright 9
  <span itemprop="copyrightYear">2010</span>
   <span itemprop="copyrightHolder">The Example Company</span>
  <a href="about.html">About</a>
    <a. href="policy.html">Privacy Policy</a>
    <a href="contact.html">Contact Us</a><
 </footer>
</body>
```







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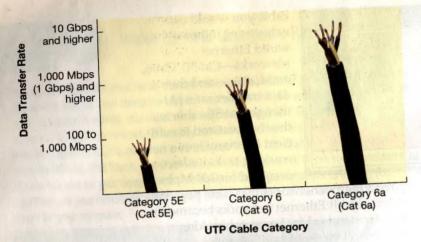


Figure 7.11 **Data Transfer Rates for** Popular Home Network Cable Types

speeds as fast as 10 Gbps. Installing a 10 gigabit Ethernet network in the home is probably unnecessary because today's home applications don't require this rate of data

when running UTP cable? UTP cable is no more difficult to install than normal phone cable but there are a few things to avoid. Do not put sharp bends into the cable when running it around corners because this can damage the copper wires inside and lead to breakage. Also, run the cable around the perimeter of the room (instead of under

What precautions should I taken

Wireless

DSL/Cable

router

class connection

a rug, for example) to prevent damage to wires from foot traffic.

How long can an Ethernet cable run be? Regardless of the type of Ethernet cable you use, runs for UTP cable can't exceed 100 meters (328 feet) or the signal starts to degrade. Even for short cable runs, you should use continuous lengths of cable. Although two cables can be spliced together with a connecting jack, this creates a point of failure for the cable, because connectors can loosen in the connecting jack and moisture or dust can accumulate on the contacts.

Fortunately, you don't have to choose between a wired or a wireless network. Ethernet networks can handle your wired and wireless needs on the same network. This gives you the best of both worlds (portability and high throughput).

# Wired and Wireless on One Network

Can I have wired and wireless nodes on one Ethernet network? Yes, one Ethernet network can support nodes with both wireless and wired connections. Most people will want to connect portable devices (such as notebooks and smartphones) that are constantly being moved around the home wirelessly to their network. However, many of the devices that are connected to a network (such as televisions, DVRs, and Blu-ray players) usually stay in one location. Although these devices proba-

> Are there other types of P2P networks that can be installed in the home?

Notebook on

back porch with

vireless connection

are extremely rare. Because Ethernet networks 1) are based on a well-

bly feature wireless connectivity also, it may be desirable to hook them up to wired connections to take advantage of faster throughput achieved by wired connectivity. Routers sold for home networks facilitate wired and wireless connections. Figure 7.12 shows an example of a network with a wireless/wired router attached.

Non-Ethernet networks in the home established standard, 2) feature easy

set-up, 3) provide good throughput for home networking needs, and (4) are cost effective, manufacturers of home networking equipment have overwhelmingly embraced Ethernet networks.

Does the type of operating system I'm using affect my choice of a home networking standard? Windows, OS X, and Linux built in P2P networking software will all support connection to an Ethernet network. Therefore, an Ethernet network is appropriate for all computers using these three operating systems.

## **Home Ethernet Equipment**

By now you should have enough information to decide what nodes on your network need be connected wirelessly and which devices would benefit from wired connections. In this section, we'll explore the various types of equipment (such as a router) that you need to obtain to configure your home network. And we'll explore what devices your nodes need to contain to enable them to connect to your network.

#### **Routers and Switches: Moving Data Around Your Network**

What equipment do I need for a home Ethernet network? Ethernet networks need network navigation devices to make them work and therefore the first piece of equipment to consider is a router. Recall that routers are designed to transfer packets of data between two (or more) networks-in this case, your home network and the Internet. A router is essential on a home network to allow sharing of an Internet

connection. For an Ethernet network to function properly, data must also be transmitted efficiently around the network. A switch is the device that is used on Ethernet networks to route the data between nodes on the same

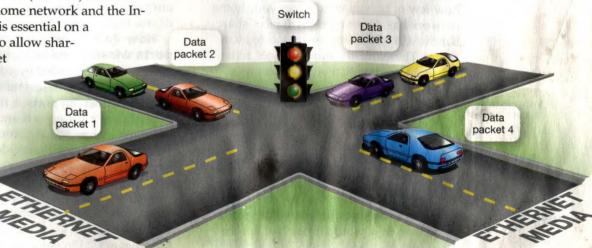
Because both a router and a switch are needed on home Ethernet networks, the manufacturers of home networking equipment make devices that are a combination of routers and switches. In most instances, these devices are called routers or broadband routers. But despite the name, these devices do include integrated switches. Although manufacturers do make routers with only wired capabilities, for the vast majority of home networks, people buy routers with wireless capabilities.

What do switches do on an Ethernet network? Data is transmitted through the transmission medium of an Ethernet network in packets. Imagine the data packets on an Ethernet network as cars on a road. If there were no traffic signals or rules of the road (such as driving on the righthand side), we'd see a lot more collisions between vehicles, and people wouldn't get where they were going as readily (or at all). Data packets can also suffer collisions. If data packets collide, the data in them is damaged or lost. In either case, the network doesn't function efficiently. The routers you buy for home networks have a switch integrated into them, so you won't need to buy a standalone switch for your home network.

As shown in Figure 7.13, a switch in an Ethernet network acts like a traffic signal (or a traffic cop) by enforcing the rules of the

#### Figure 7.13

A simplified explanation is that switches (working in conjunction with NICs) act like traffic signals or traffic cops. They enforce the rules of the data road on an Ethernet network and help prevent data packets from crashing into each other.



Wired and wireless connections in the same home network

Computer in bedroom

with wired connection

Smartphone in kitchen with

ireless connection

Figure 7.12

As you mature, your life experiences also affect your personal ethics. Does the behavior you see around you make sense within the ethical principles that your family, your church, or your first-grade teacher taught you? Has your experience led you to abandon some ethical rules and adopt others? Have you modified how and when you apply these laws of conduct, depending on what is at stake?

What if I'm not sure what my personal ethics are? · When you have a clear and firm idea of what values are most important to you, it may be easier to handle situations in your professional and your personal life that demand ethical action. Follow these steps to help define your personal ethics:

- 1. Describe yourself. Write down words that describe who you are, based on how others view you. Would a friend describe you as honest, or helpful, or kind?
- 2. List your beliefs. Make a list of all the beliefs that influence your decision making. For example, would you be comfortable working as a research assistant in a lab that infected animals with diseases and used them for medical research? How important is it to you that you never tell a lie? Consider whether your answers to each of these questions are "flexible." Are there situations in which your answers might change (say, if a friend were ill or in danger)?
- 3. Identify external influences. Consider the places where you work and live and how you relate to the people you see during the day. Are there things that you would like to change about these

- relationships that would merit listing them in a code of ethics?
- 4. Consider "why." After writing down your beliefs, think about why you believe them. Have you accepted them without investigation? Do they stand up in the context of your real-world experiences? For which of these values would you make short-term sácrifices in order to uphold your beliefs?
- 5. Prepare a statement of values. It can be useful to distill what you have written into a short list. By having a well-defined statement of the values you hold most important in your own life, which you can refer to in times of challenge, it will be easier for you to make ethical decisions.

Are there tangible benefits to ethical living? Society has established its own set of rules of conduct in the form of laws. Ignoring or being inconsistent in following these principles can surely have an immediate impact. Whether it is complying with a law that affects the way your business is run, or with a law that affects your personal life (don't exceed the speed limit or you'll receive a fine), decision-making principles that work with society's legal boundaries can make your life much simpler.

More and more research is showing the health benefits of ethical living. When your day-to-day decisions are in conflict with the values you consider most important as a human being, you often develop stress and anger. Constant conflict between what you value and what actions you are forced to take

> can lead to a variety of types of mental and physical dam-

> > Perhaps even happiness

itself is a result of living ethically (see Figure 4). Positive psychology is a new focus in the field of psychology. Pioneered by Dr. Martin Seligman of the University of Pennsylvania, this field works to discover the causes of happiness instead of addressing the treatment of mental dysfunctions. Dr. Seligman's research has shown that, by identifying your personal strengths and values, and then aligning your life so that

you can apply them every day, you can experience an increase in happiness (and a decrease in depression) equivalent to the effects of antidepressant medication and therapy. Thus, finding a way to identify and then apply your ethics and values to your daily life can have an impact on your health and happiness.

### **PERSONAL ETHICS AND** YOUR WORLDVIEW

How do my personal ethics fit into the world at large? All of your actions, words, and even thoughts are controlled by your personal ideas of right and wrong. But do your ethics shift when you go to work? Your employer expects you to follow the ethics and rules of conduct that the owner has established for the business. Although each person at your workplace may be trying to follow corporate ethical guidelines, each person will follow them differently based on his or her personal ethics. Person A may feel it is acceptable to tell white lies to get more funding for his project, whereas Person B might believe that telling the truth at all times is the best and only way that she can foster the teamwork and cooperation necessary to complete a project.

This doesn't mean that individuals need to blindly follow practices they feel are unethical or detrimental to society at large. Most whistle-blowers are people that report businesses to regulatory agencies for committing illegal acts. Other whistle blowers expose unethical (but still legal) acts by their employers by publicizing unethical behavior through various media outlets.

In summary, when you are working in a business environment, your ethics are guided by the ethical principles that are defined by the business owner or management, but you are still ultimately guided by your personal ethics.

How do employers affect personal ethics? Should your employer have control (or even input) about your conduct outside of the office? Do behavior, integrity, and honesty off the job relate to job performance? They might. But even if they don't, your actions could reflect poorly on your employer from your employer's perspective. Consider Ellen Simonetti, who was fired by Delta Airlines for blogging. Even though Ms. Simonetti never mentioned Delta Airlines by name on her blog ("Queen of the Sky: Diary of a Dysfunctional Flight Attendant"), Delta

Airlines objected to photos that she posted of herself and fellow flight attendants in their Delta uniforms. Delta Airlines felt that the photos were inappropriate and portrayed negative images of Delta Airlines employees. Another example is Jillian Tomlinson, the Australian surgeon who was suspended by her employer for discussing medical procedures, her work environment, and fellow employees, and for posting CAT scans of patients on her blog (although patient names were not revealed). Therefore, although your ethics might dictate one mode of behavior, you need to consider how your employer might view your actions (see Figure 5).

#### How does making ethical choices in a business setting differ from making personal ethical choices?

Most personal ethical decisions involve few people, unless the decision results in a significant impact on society. When making ethical choices in the business world, give careful consideration to the stakeholders of the business. Stakeholders are those people or entities who are affected by the operations of a business. Before making an ethical choice for a business, you need to consider the effect that choice will have on all of the stakeholders. Typical stakeholders for most businesses are customers, suppliers, employees, investors (shareholders), financial lenders, and society.

For instance, suppose you decide to cut costs in your restaurant by hiring undocumented workers. While this might boost profits in the short term, the long-term impact on stakeholders can be severe. Potential employees who are eligible to work in the United

#### FIGURE 5

Is your boss watching you? Does that make you more or less inclined to behave ethically?

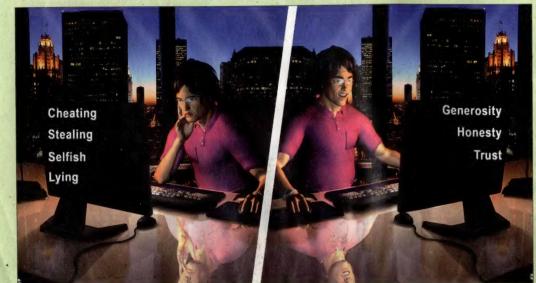




FIGURE 4

The field of positive

that living and work-

ing ethically affects

your happiness.

psychology shows

## **ETHICS IN COMPUTING**

You just bought a new notebook computer. You know you can go to BitTorrent or LimeWire to download the latest summer blockbuster movie and its soundtrack. You also probably know this is unethical. Although pirating music and videos is a valid example of unethical behavior, it has been overused as an illustration of the ethical challenges of technology. There is a vast range of ethical issues surrounding technology. (as shown in Figure 1), several of which we will discuss in this section. Many other issues are discussed in the Ethics in IT sections of each chapter throughout the book.

## WHAT IS ETHICS?

Ethics is the study of the general nature of morals and of the specific moral choices made by individuals. Morals involve conforming to established or accepted ideas of right and wrong (as generally dictated by society), and are usually viewed as black and white. Ethical issues often involve subtle distinctions, such as the difference between fairness and equity. Ethical values are the guidelines you use to make decisions each day. For example, the person in front of you at the coffee shop drops a dollar on the floor and doesn't notice it. Do you tell him or her about it, or do you pick up the dollar and use it to pay for your coffee?

Doesn't everyone have the same basic ethics? There are many systems of ethical conduct. Relativism is a theory that holds that there is no universal moral truth and that instead there are only beliefs, perspectives, and values. Everyone has his or her own ideas of right and wrong, and so who are we to judge

TAXATION COMMERCE

FRAUD

FRAU

anyone else? Another ethical philosophy is situational ethics, which states that decision making should be based on the circumstances of a particular situation and not on fixed laws.

Many other ethical systems have been proposed over time, some of which are defined by religious traditions. For example, the expression "Judeo-Christian ethics" refers to the common set of basic values shared across the Jewish and Christian religious traditions. These include behaviors such as respecting property and relationships, honoring one's parents, and being kind to others.

Are laws established to guide people's ethical actions? Laws are formal, written standards designed to apply to everyone. Laws are enforced by government agencies (such as the police, the Federal Bureau of Investigation, the Food and Drug Administration, and so on) and interpreted by the courts. It is not possible to pass laws that cover every possible behavior that human beings can engage in. Therefore, societal ethics provides a general set of unwritten guidelines for people to follow.

Rule utilitarianism is an ethical theory that espouses establishing moral guidelines through specific rules. The idea behind this system is that if everyone adheres to the same moral code, society as a whole will improve and people will be happier. Many societies follow this system in general terms, including the United States. For instance, laws against nudity in public places (except for a few nude beaches) in the United States help define public nudity as immoral.

cally? Although many valid systems of ethical conduct exist, sometimes people act in a manner that violates the beliefs they hold or the beliefs of the ethical system they say they follow. Unethical behavior can be defined as not conforming to a set of approved standards of social or professional behavior. For instance, using your phone to text message a test answer to your friend during an exam is prohibited by many colleges' rules of student conduct. This behavior is different from amoral behavior, in which a person has no sense of right and wrong and no interest in the moral consequences of his or her actions.

for illegal activity? Unethical behavior does not have to be illegal. An example of an unethical but not illegal practice is supermarket

slotting fees. These are fees that some supermarkets charge to produce companies and product manufacturers for the privilege of having their products placed on store shelves. This is considered unethical by many people because it puts smaller companies, which often don't have the financial resources to pay these fees, at a disadvantage.

Not all illegal behavior is unethical. Civil disobedience, which is manifested by intentionally refusing to obey certain laws, is used as a form of protest to effect change in extreme situations. Gandhi's nonviolent resistance to the British rule of India, which led to India's establishment as an independent country, is an example of civil disobedience. Although the British were ruling India, is it ever ethical for one country to control another country's people?

Which system of ethics works
best? There is no universal agreement on
which is the best system of ethics. Most
societies use a blend of different systems.
Regardless of the ethical system of the
society in which you live, all ethical decisions
are greatly influenced by personal ethics.

# PERSONAL ETHICS

What are personal ethics? Every day you say certain things and take specific actions, and at each point you are making decisions based on some criterion. It may be that you are

trying to care for the people around you, or are trying to eliminate a source of pain or anger in your life. Your words and actions may also be driven by a combination of criteria. As you choose your words and actions, you are following a set of personal ethics—a checklist of personal decisions you have compiled to organize your life. Some people have a clear, well-defined set of principles they follow. Others' ethics are inconsistent or are applied differently in similar situations.

It can be challenging to adhere to your own ethical system if the consequences of your decisions today might lead to an unhappy result for you in the short term. For instance, to get the job of your dreams, should you exaggerate a bit on your résumé and say you've already finished your college degree, even though you are still one credit short? Is this lying? Is

such behavior justified in this setting? After all, you do intend to finish that last credit, and you would work really hard for this company if you were hired. If you tell the truth and state that you haven't finished college yet, then you might be passed over for the position. Making this choice is an ethical decision (see Figure 2).

How do a person's ethics develop? Many elements contribute to your ethical development (see Figure 3). Naturally, your family has a major role in establishing the values you cherish in your own life, and these might include a cultural bias toward certain moral positions. Your religious affiliation is another major influence in your ethical life, because most religions have established specific codes of ethical conduct. How these sets of ethics interact with the values of the larger culture is often challenging. Issues such as abortion, the death penalty, and war force confrontations between personal ethical systems and the larger society's established legal-ethical system.

COMMITMENT

FIGURE 2

It would be nice if there were signposts to ethical conduct, but the issues are complex.

FIGURE 3

Many different forces shape your ethical worldview.



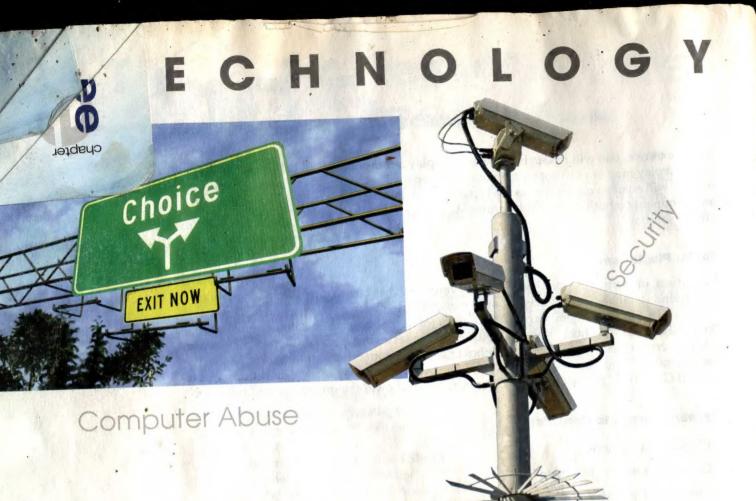
FIGURE 1

Ethics in computing

covers a wide range

of areas, not just pri-

vacy and security.



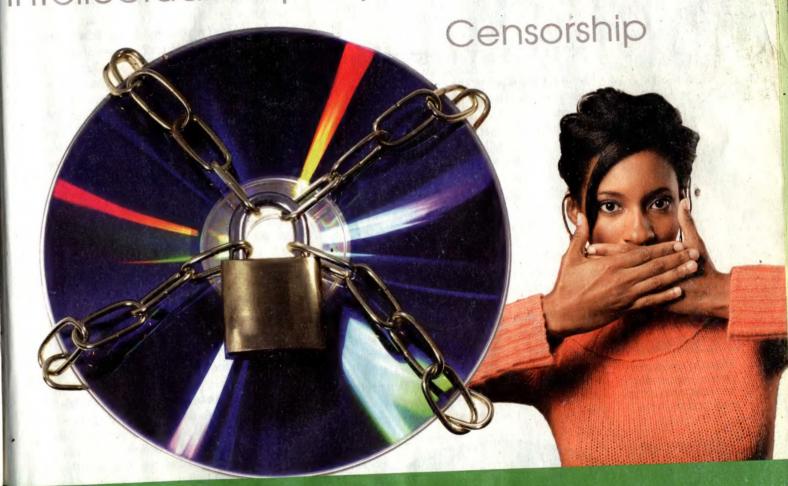
# Information Technology

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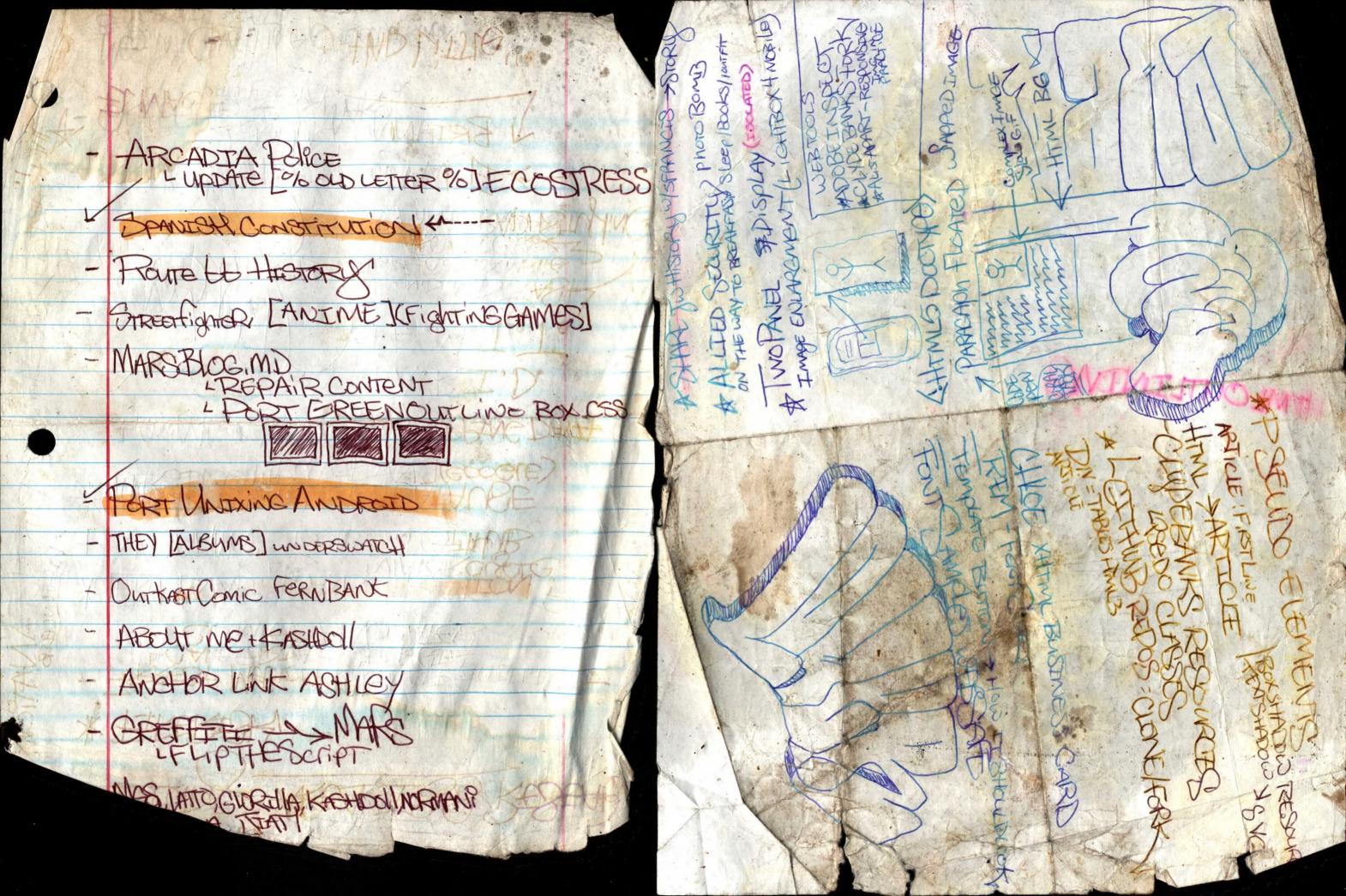
In this Technology in Focus section, we explore what ethics is, how your personal ethics develop, and how your personal ethics fit into the world around you. We'll also examine how technology and ethics affect each other and how technology can be used to support ethical conduct. Finally, we'll examine several key issues in technology ethics today, including the areas of social justice, intellectual property rights, privacy, e-commerce, free speech, and computer abuse.

# INFOCUS

Intellectual Property



People speak of ethics—and the lack of ethics—casually all the time, but the ethical choices that individuals make are an extremely serious matter and can have a far-reaching impact. It is important to have a clear idea of what ethics are, what your personal ethics are, and how personal ethics fit into the world at large.





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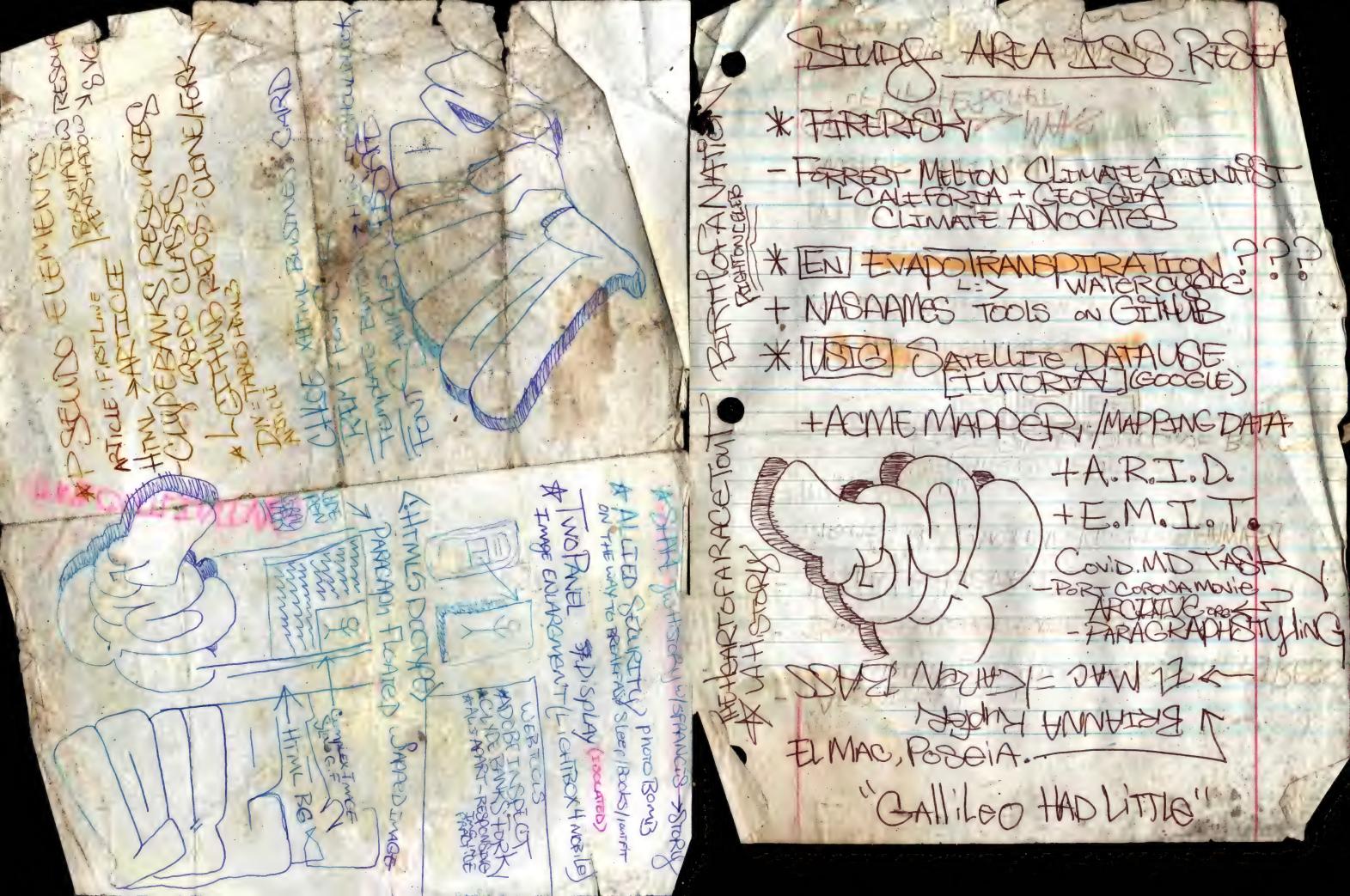
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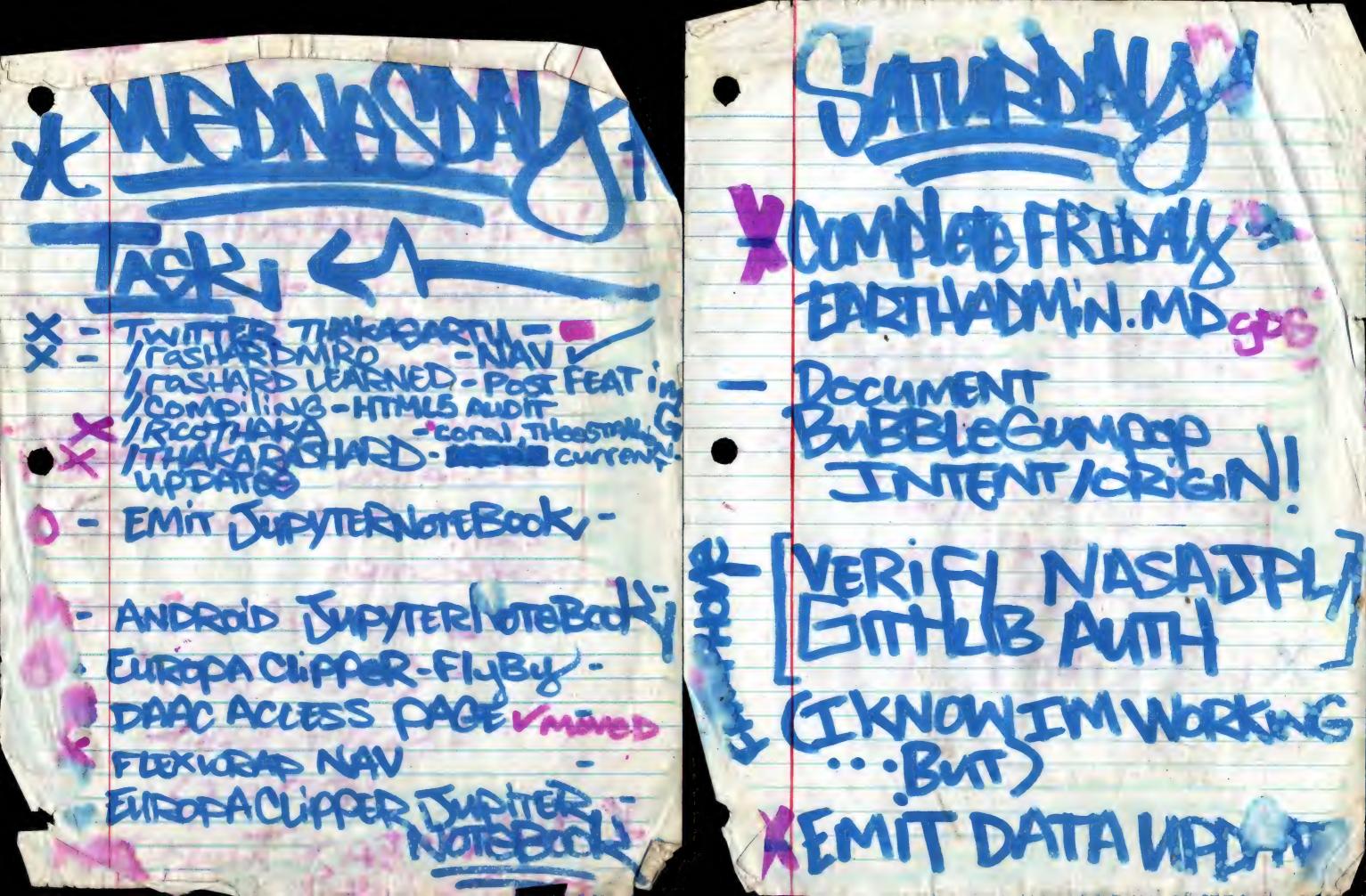
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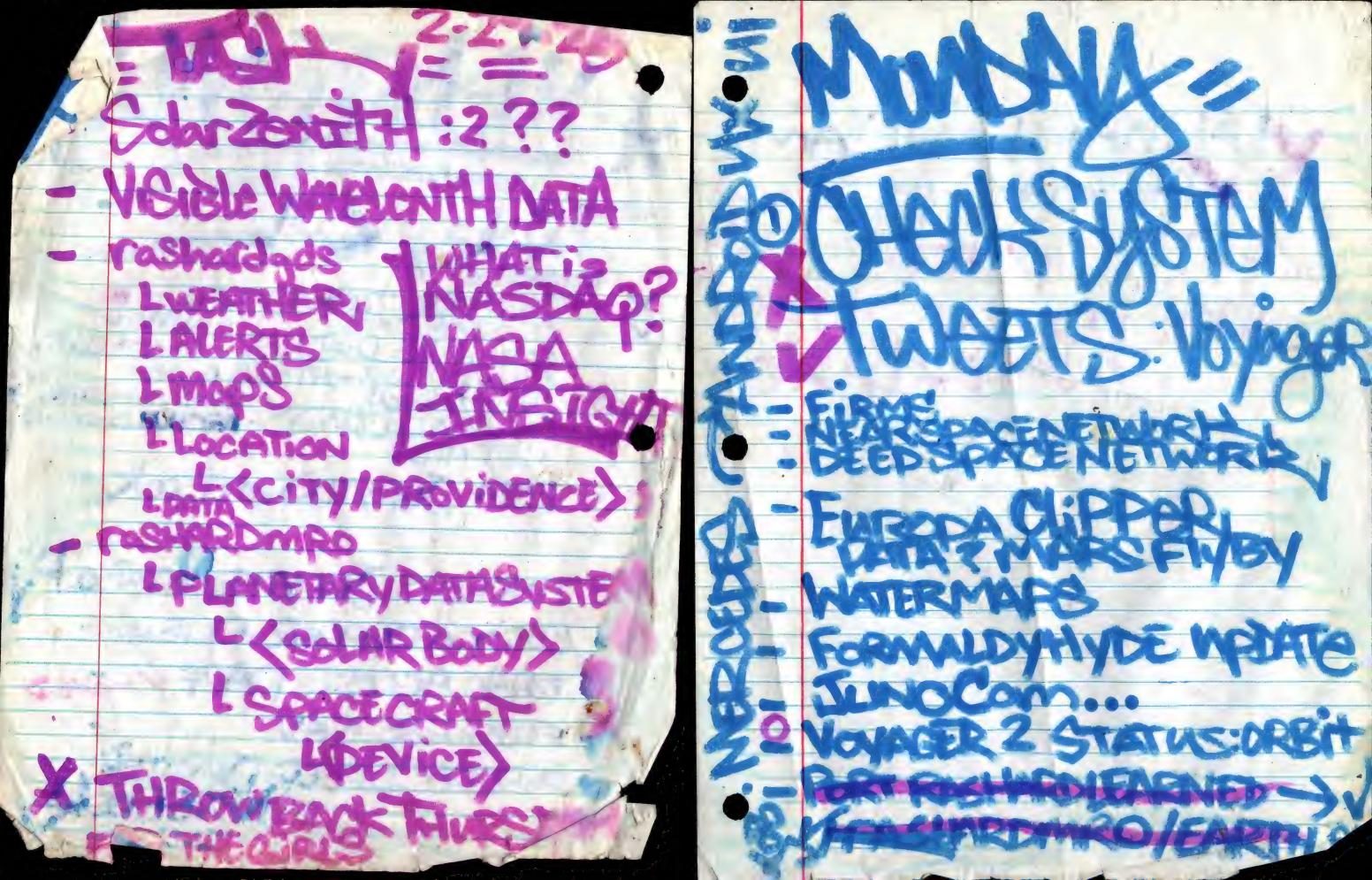


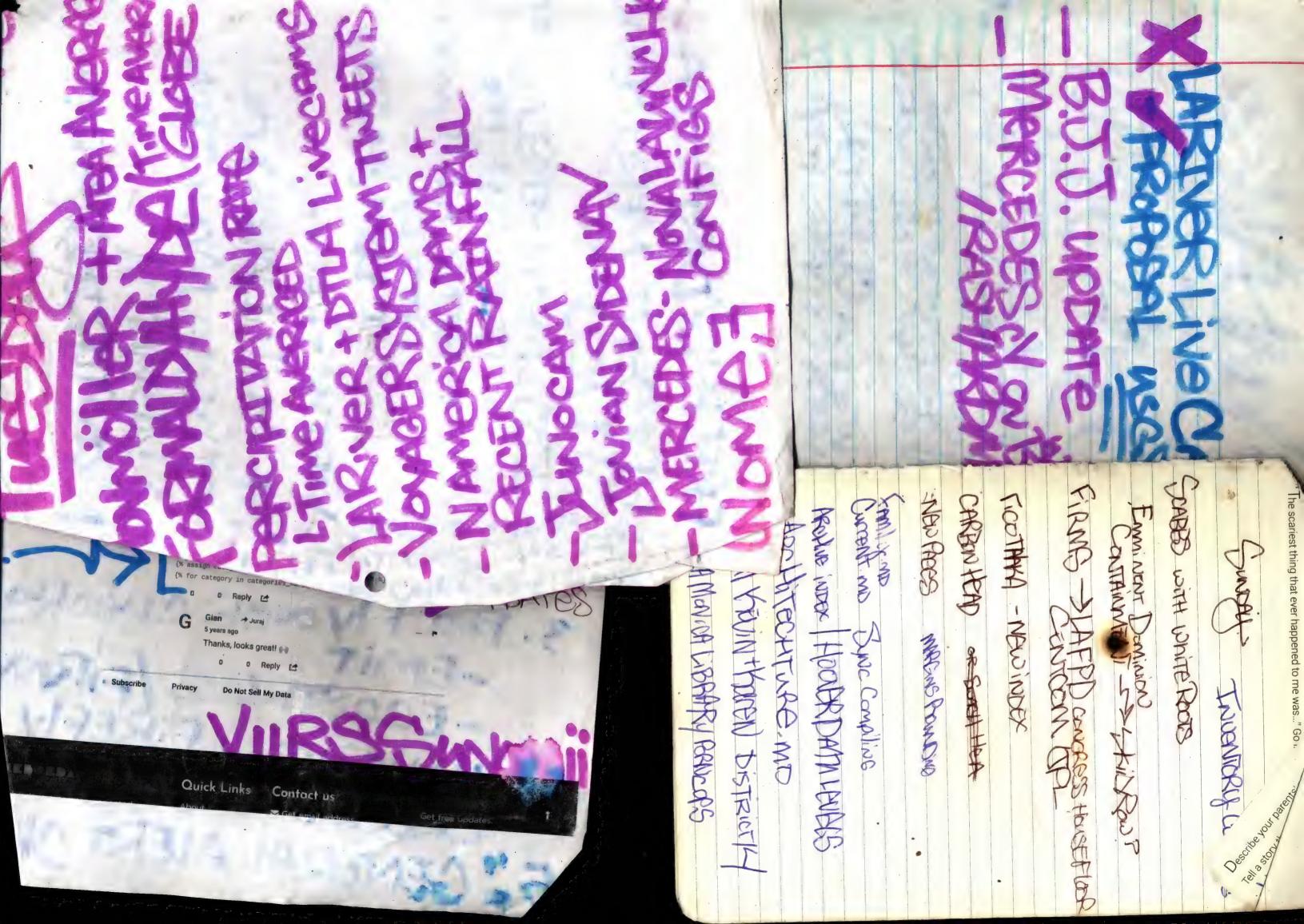
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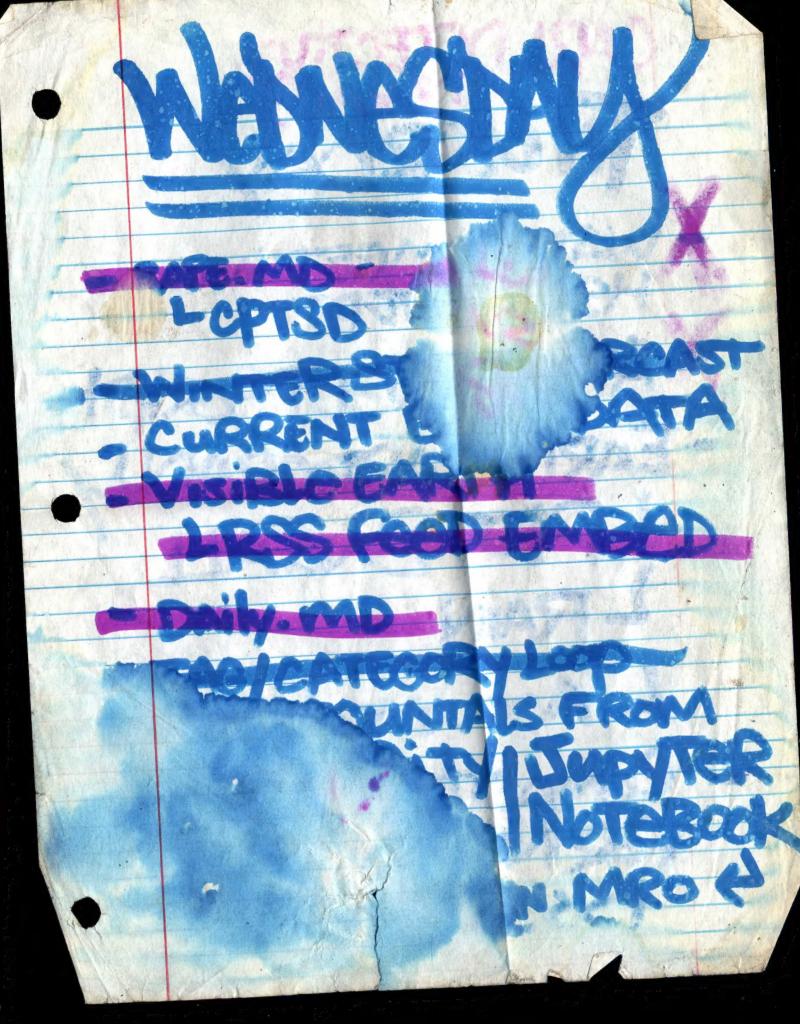


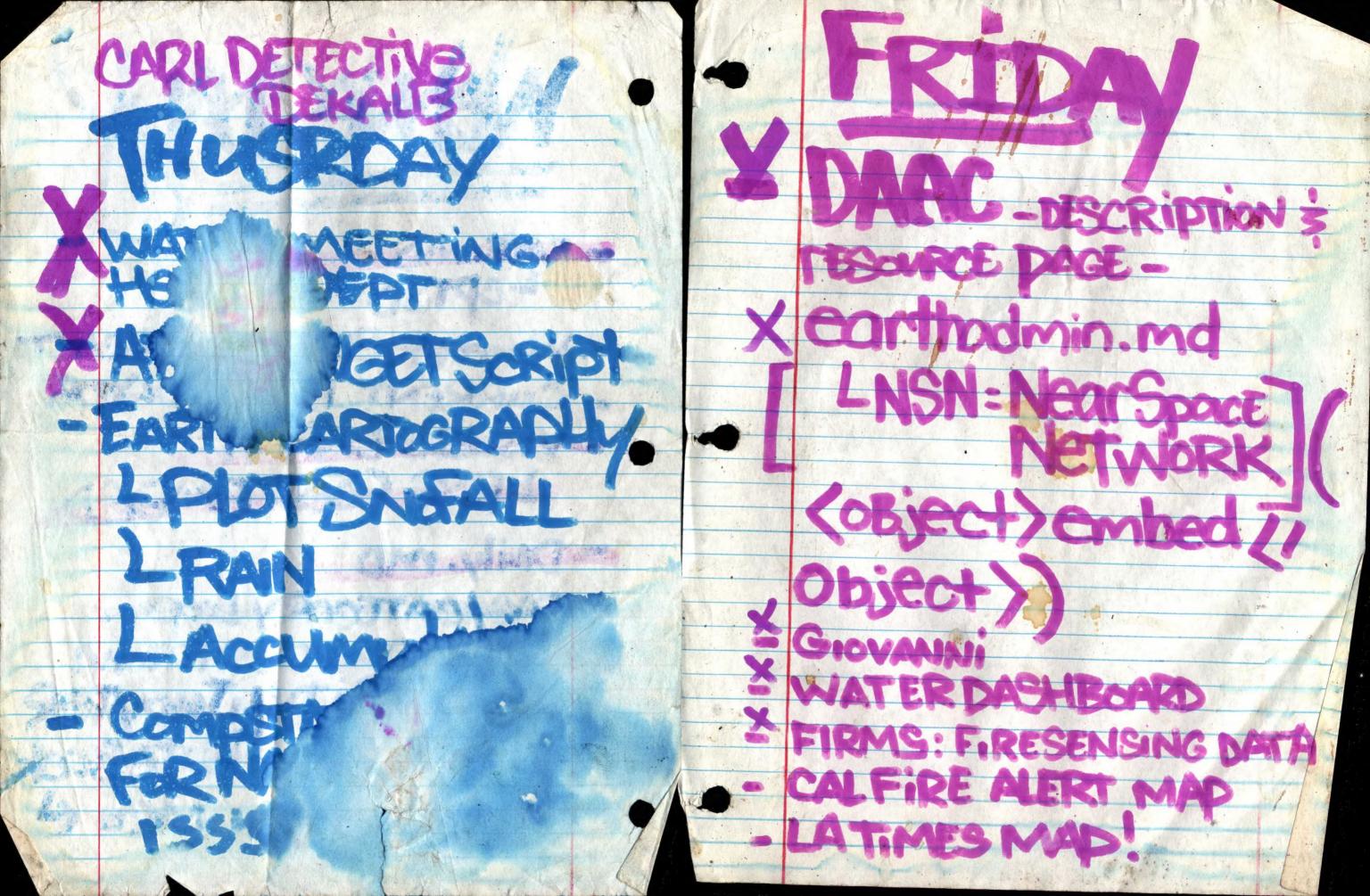
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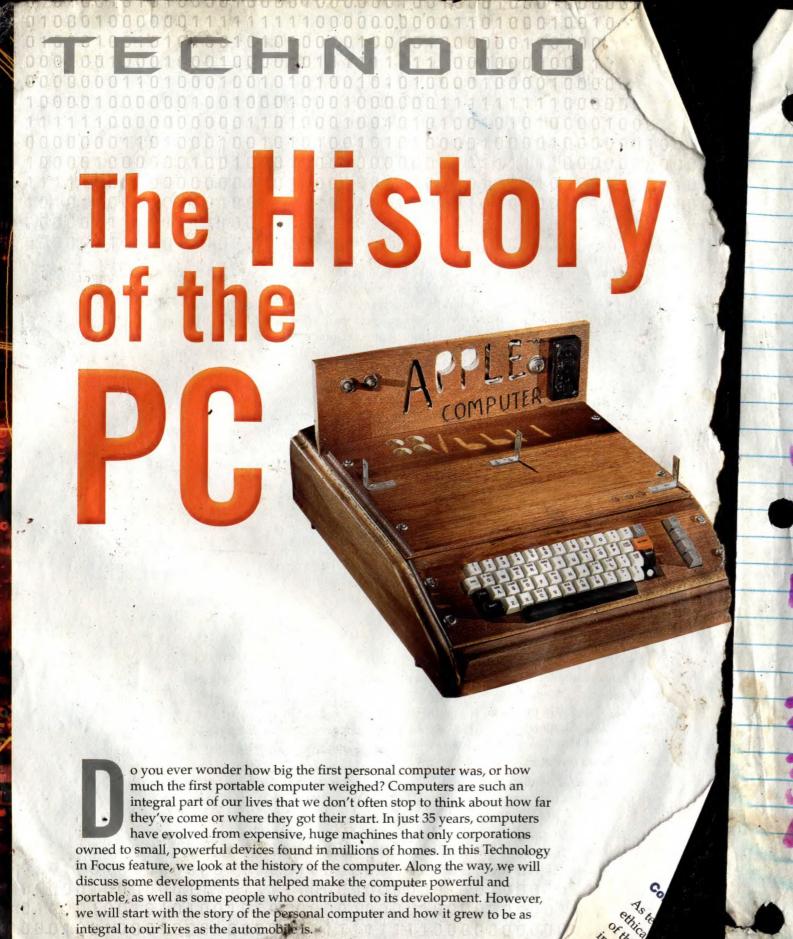
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echnology in Action

